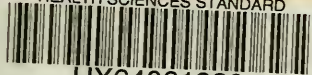


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The human spine : an

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The Gypsum Jacket

VERSUS

Compound Supports.

THE HUMAN SPINE.

AN ANALYSIS

OF

THE COMPARATIVE MERITS OF THE

GYPSUM JACKET

AND

COMPOUND ADJUSTABLE SUPPORTS

IN THE PHYSICAL TREATMENT OF

SPINAL IRRITATION, CARIES, CURVATURE.

TOGETHER WITH THE

CONSERVATION OF THE VISCERAL AND MUSCULAR FUNCTIONS

E. P. BANNING, M. D.,

BOSTON, MASS.

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ALFRED MUDGE & SON, 34 SCHOOL STREET.

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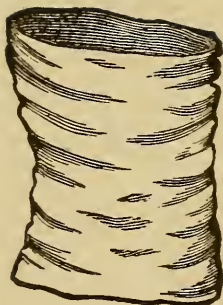


FIG. 1.

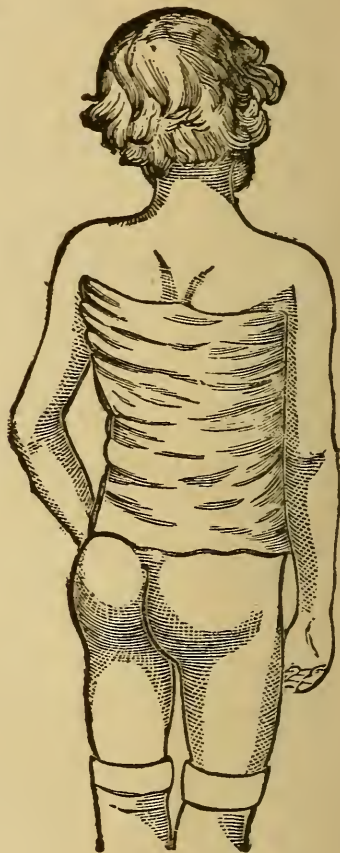


FIG. 2.

FIG. 1. The Gypsum or Plaster Jacket.

FIG. 2. The Gypsum or Plaster Jacket applied: Endeavoring to correct curvature by circular action; compressing the primæ viæ, interfering with respiration, and forcing the abdominal viscera downward.

NOTE.

IN 1866 a series of articles on the truncal muscles, from the pen of the writer, appeared in the Philadelphia *Medical and Surgical Reporter*, and there was a very general request that they should be published in the form of a monograph, which was done by the publishers of "*Braithwaite*," the work being known as "*Banning's Mechanical Pathology and Therapeutics*." It ran through several editions, and would probably be in press to-day had not the plates been destroyed by fire. At the suggestion of the publishers it is being rewritten, and the result of late researches and experience added.

This pamphlet is from the forthcoming book, which will bear the title of "*Vital Mechanics*."

Members of the profession desiring to subscribe for the same will please address the author, at 101 Boylston Street, Boston, Mass.

THE HUMAN SPINE.

THE GYPSUM JACKET

VERSUS

COMPOUND ADJUSTABLE SUPPORT.

E. P. BANNING, M. D.,

101 BOYLSTON STREET, BOSTON, MASS.

So great has become the prevalence of spinal irritation, caries, and curvature, as to make the question of the *best* means of their mitigation an absorbing topic.

Of the physical means employed there is a great variety of constructions, with as great a variety in degrees of merit ; and, as fair representations, I select two (see Figs. 1 and 3, pages 4 and 8) : Fig. 1 being the Gypsum or Plaster Jacket, which has suddenly sprung into great popularity under the ægis of Lewis Sayre, M. D., and Fig. 3 is the Spinal Prop. Fig. 1 certainly has the merit of simplicity, both of construction and action, and Fig. 3 is more complex both in construction and action.

Now, as both plans embody merit, I propose to impartially analyze the *modus operandi* of these respective plans, in the light of physiological law and of natural philosophy, with a view to settling the question as to which of them affords the *greatest* advan-

tages, both as relates to the temporary and immediate, and the *ultimate* and *permanent* interest of the subject.

We will suppose the *subject* to be something like Fig. 2 ; the bodies of some of the vertebræ are softened, or tending to softening, to say the least ; their intervening cartilages are seriously compressed, widened and thinned ; the *face* of the spine is shortened, and its dorsum correspondingly extended ; the spinous ligaments and dorsal muscles, of consequence, are put upon a corresponding strain, and the superincumbent weight of the superior trunk by an acquired leverage is coerced to increase these abnormal conditions, and, all of these conjointly, must tend to progressive irritation, inflammation, softening and absorption of cartilage and bone, and also to a painful strain on the spinous ligaments, and an attenuation and exhaustion of the spinal muscles. It must also tend to compress the primivie, and depress the diaphragm ; impede free respiration, and to depress all the pelvic organs ; also, to impede the force of the sanguinous and nervous circulations in the inferior extremities. Add to all this, also, the fact that there is probably a constitutional cachexy or dissolving diathesis ; and further, that the nervous system greatly preponderates over the osseous and muscular, which is much against the patient.

Now, in order first to *comfort*, and secondly to *save* the patient, several things (apart from requisite constitutional treatment) are imperatively demanded :—

First. Crushing superincumbent weight must be removed from the softening points of the spine, com-

pressed cartilages, exhausted spinous ligaments and spinal muscles.

Second. There must be some actual *lifting* force brought to bear upon the depressed abdominal viscera and the settling upper trunk, so as to assist the inadequate abdominal and spinal muscles in lengthening the shortened face, and shortening the elongated dorsum of the spine.

Third. There must be no depressing influence left upon the abdominal and pelvic viscera, or upon the circulating communications of the extremities; and no compression of the first digestive organs, nor any restriction on the freest movements of the ribs, lungs, or heart.

Fourth. And whatever we may do, nothing must compromise or jeopardize the largest strength and activity of the spinal, abdominal, and pectoral muscles.

Each of these points are of *cardinal* physiological importance, more especially as relates to the permanent re-establishment of the patient; and none of them may in any wise be disregarded for a little mere *temporary* advantage. With all these points in mind, we will proceed to give the patient what support and erection we can by the application of the Gypsum Jacket (see Fig. 2, page 4). Here, it is on the subject. We see it to be a skin-fitting, stiff, and unyielding appliance, and that it fits with such tightness and uniformity everywhere that the patient can stand, and is really straighter. Settle down he cannot, for he is literally hugged and squeezed into some straightness. Seeing this, the parents are in a transport of delight and expectation.

Now, were there no other considerations than that of straightening the spine to be looked after, we might always depend on an almost indefinite amount of improvement by this process, aggressively managed. But *how* does this mere circular Jacket accomplish all the above-named indications? Certainly not by the slightest direct vertical support or elevating action on the depressed abdominal organs or settling upper trunk; nor by any actual supporting, expanding, or spring action: but, on the contrary, by a mere circular, horizontal, and squeezing action; and this, too, around the middle of the trunk, over those vital organs which demand the freest action in the performance of their indispensable functions.

A figure of green putty may by the same means be made to stand, and if held so till it dries, may be held permanently erect; but the living body, which is erect mostly from a well-balanced antagonism of the truncal muscles, cannot be dried into erectness and strength.

A slim feather pillow cannot stand erect, yet a firm bandage around it may stiffen it into position; but if it is ripped open at the top and well filled with more good feathers, it is strong *of itself*, from internal expansion, now that its contents are its bracing-out support. Just so is the body, with a strong condition of the truncal muscles, by which the viscera are compacted *upward*; the latter are *compelled* to brace out, support, and give rotundity to the body, just as a plump body gives support to a suit of well-fitting garments, or as filling a bag well with apples will give it rotundity and erectness.

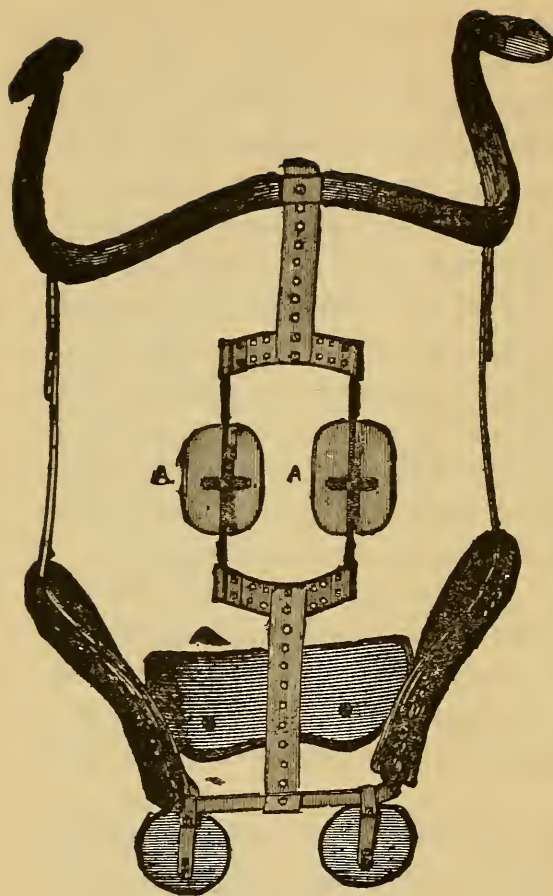


FIG 3.

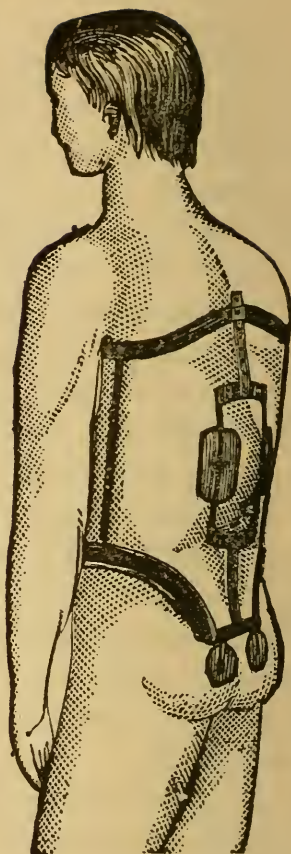


Fig. 4.

FIG. 3. REVOLVING SPINAL PROP. — *A A*, plates which revolve on screw posts, so as to fit the planes of the curve on either side, and secure an equal flat support. These plates are curved to the form, and may be run up and down, on the screw posts, to suit the height of the curve; they are a positive protection against bruising or irritating the prominent parts.

FIG. 4. THE REVOLVING SPINAL PROP. — Immediately strengthening the whole person, and arresting caries and curvature: First, by upward support, which converts the abdominal viscera into an internal brace. Second, by its crutch-like action, which holds the body's weight from the spinal curve. Third, by a strong drawing back of the shoulders by the caps on the shoulder-bow in front of the heads of the humeri. And fourth, by the strong bracing and pushing-forward action of the revolving dorsal plates on the vertical screw rods upon the curvature. By a revolving action these plates are self-adjustable to any slope of the spinal angle at either side, with no necessity for any impingement upon the spinous protuberance. As the case improves, the vertical support may be successively increased by means of slides and screws in the side-posts.

But let us scrutinize the internal working of this mere squeezing or cheese-hoop process. First, the stomach, liver, and spleen are being compressed, which will tend to derange the process of digestion; the bowels are also more or less depressed, which will tend to induce urinary irritation, constipation, piles, and uterine obliquities and displacements from bowel weight, and this pressure is also liable to be extended to an obstruction of the nervous and sanguineous circulations, inducing numbness and weakness of the inferior extremities; and the most palpably of all, the action of all the pectoral muscles and of the lungs is seriously impeded, so that respiration (what little there is) has mainly to be performed by the abdomen; whilst in the case of a scrofulous and consumptive tendency, the lungs are in danger from congestion and lack of necessary motion.

Suppose that by reason of a strong and unsusceptible constitution these visceral effects are sometimes averted; still, with so small an opportunity for the restoration of the spinal, pectoral, and abdominal muscles by inherent effort, how is the patient to recover his wonted strength? For, in real truth, I have asked the above questions with emphasis, in view of the fact that my earlier and later efforts to mitigate uterine, spinal, and other weaknesses by arti-

NOTE. — Dr. Nicholas Grattan, in a letter to the *Lancet* regarding the Jacket, says: "It should be sawn and cut through a quarter of an inch at each side of the median line, and the middle strip of an *half an inch* wide removed. . . . I have almost always found on cutting a Jacket that it has become too large, *either through the Jacket having stretched, or the patient having diminished in size.*" The italics are mine. Comment is needless. — *Banning.*

ficial supports were (and still are) met by the very grave and reverend objection, or truism, that if you support a part that should support itself, it becomes weaker, and you will always have to support it ; and yet here the cure is attempted by a process which *literally* paralyzes muscular effort, and is a direct infringement upon the most vital functions. Notwithstanding this, I am convinced that *force* enough will straighten almost any spine (or a crowbar, even) ; but by this method how are you to keep it straight, and give *permanent* spinal and muscular vigor to the body ? To me, it appears that reason should lead any one to these conclusions ; but they have been *forced* upon me by the observance of facts in the premises.

These criticisms may be met by the citation of cases of complete success in curvature and caries, and of complete restoration to muscular vigor, just as in the case of fractures, etc. To this I reply, first, that in fractures there is no *vital* function involved, or any danger to the muscles from their temporary confinement. Next, that the question does not stand as to what *can* be done, or *borne*, under an emergency, but rather, is there not a *more excellent* way, which is equally effective, and at the same time avoids the specified drawbacks ?

We will now, in turn, consider the construction and working of the REVOLVING SPINAL PROP (see Figs. 3 and 4, page 8). This appliance seems to consist, —

First. Of a basic framework (or *terra-firma*), which fits so evenly just inside and above the edges of the *innominata* as to make it immovable, and enable it to bear any amount of weight without giving pain.

This, also, has an undulating and supporting abdominal plate attached, which exerts a strong *upward* action.

Second. This *terra-firma* is surmounted by soft crutches, which are held under the axilla by jointed side posts, which are attached to the frame as a base.

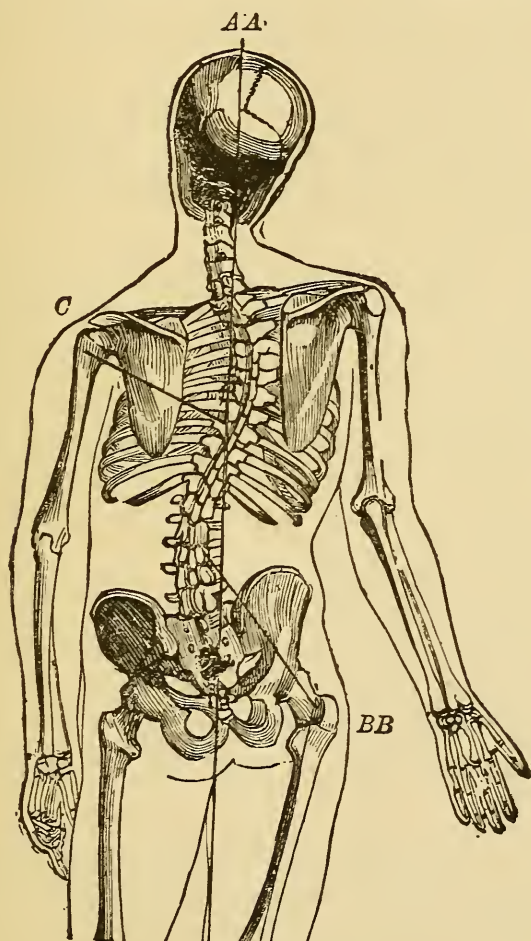


FIG. 5.

Fig. 5 represents the body supported mainly on right foot. *AA*, perpendicular line, from centre of head to right heel; showing the head to be still vertical to the basal point. *BB*, angular line indicating the direction of gravity against the lumbar spine, and shoving it to one side. *C*, line showing the weight of the head and left shoulder to be in the interest of a dorsal curve to the right.

Third. Next is a long spinal lever with revolving plates on a hollow square, which is attached at top and bottom to the shoulder crutches and base. Thus we see it is a supplement to the pelvis, spine, and chest, and also to the abdominal, spinal, and scapular muscles.

We will now place this appliance upon the subject (see Fig. 4, page 8).

First. We see the pelvic framework sitting quietly inside and above the unyielding pelvis, and ready to bear any desired amount of superincumbent weight complacently.

Second. We see that by the lifting and undulating action of the abdominal plate at the lowest hypogastrium, the depressed viscera are all elevated from the pelvic organs, and the arteries, veins, and nerves of the extremities ; also, that the viscera are compelled to *ascend* to their normal height to support the upper viscera, and expand the trunk, at the now contracted region of the epigastrium.

Third. We see that the jointed side-posts, resting on the arches of the base, are forcing the soft crutches to support and lift the superior trunk (at discretion) off from the cartilages, softening vertebræ, and digestive organs, and thus to tend to straighten the settling spine.

Fourth. We see the spinal lever and its revolving plates on the hollow square, gently and yet forcibly, bracing forward the retreating curvature towards its proper spinal axis, and compelling the shoulder-caps, which are its antipode point, to correspondingly draw back the advancing shoulders. Thus, by the simulta-

neous and conjoint lifting action of the lower part upon the abdomen, of the crutches under the axilla, and the bracing forward and drawing back action of the revolving plates and the shoulder-caps, all the truncal muscles (and bones as well) are supplemented ; that the whole trunk, without and within, is lengthened and expanded ; that the face of the spine is being steadily lengthened, and its dorsum shortened, and that the dissolving bones and cartilages are relieved of a disorganizing pressure ; that the pelvic organs and the circulations of the extremities are relieved from any depressing force ; the viscera, also, are restored *in situ* to freedom, and the stomach, liver, and spleen to the warming and stimulating support of the bowels ; that the inverted diaphragm is again concavo-convexed ; that the heart is properly supported, and the freest play given to all the organs of respiration.

Furthermore, a mere superficial glance will suggest that there is not one backward, inward, contracting, or depressing action, nor the compression of one vessel, viscus, or muscle ; but that, on the contrary, the spine and abdomen are shoved *outward* and *forward*, just as in the action of the abdomen, spine, and scapula, when a man thinks enough of himself to bring those muscles into requisition in health. Indeed, it seems to act so in accord and concord with the idea of the Maker in setting up and running the body, that it only *rests* the discouraged parts, and so helps them as to encourage and inspire them to resume their own work ; hence it is, that unlike too many artificial supports which act by *mere force*, out-

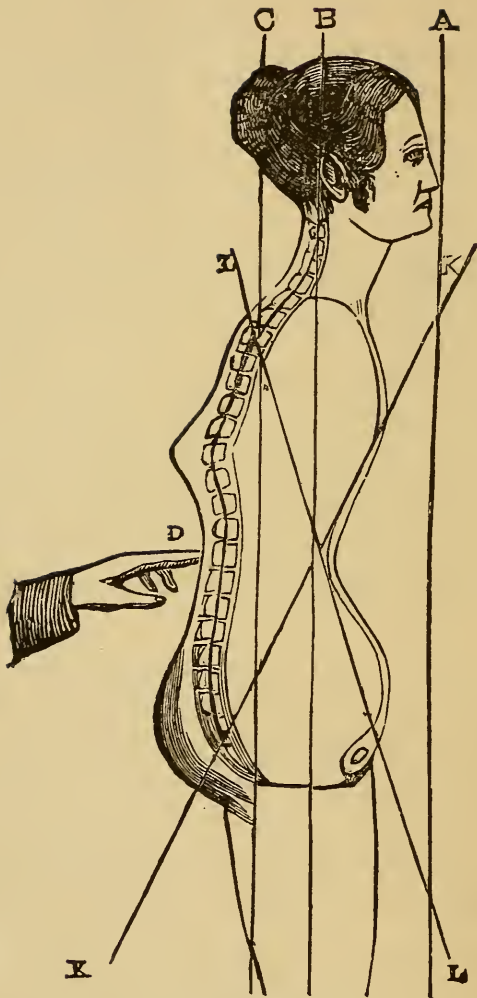


FIG. 6.

Showing the dorso-lumbar curve retreating from body's centre of gravity (junction of lines *K* and *B*), and the palpable necessity for aggressive support at *D*.

side of principle, their use may always be ultimately discontinued, for they have not only done their own work, but have set the weakened parts to work also.

Thus, gentlemen, the two diverse appliances and their principles stand side by side. Without a doubt, under the wonderfully accommodating powers of the body, curative or mitigating results may occasionally be wrought by both of them. But, as before said, the question stands, not as to what has been, or *can* be done, in instances, in *spite of principles*, but rather, which is most in accord with, and in imitation of the combined forces of the body, and accomplishes its object with the least contravention of physiological law.

Out of a mass of practical tests, I will now cite only one or two cases in point, as being fairly representative of the whole. First : of the working of the Gypsum Jacket : —

CASE I. — Miss J——, a sprightly young lady of Elmira, N. Y., consulted me concerning a decided curvature, accompanied with much *general* weakness. Her desire for an improved figure was intense, and hence she had worn the Gypsum Jacket for six weeks, under a great sense of oppression, burden, and annoyance. Her respiration suffered much, and what little there was was mainly abdominal, and her abdomen was protruded and unduly poddy at the hypogastrium, from the influence of the Jacket on the ribs and bowels. The symptoms of pelvic weakness and displacements were emphatic, and her limbs were weak and cold. Her mother felt sure that her

daughter was rapidly sinking under the process. I was forced to counsel the removal of that kind of action, and suggest the application of *support* with no countervailing physiological influence. I regret that the attendant did not accept the advice given; for within the year my worst fears were realized.

CASE 2. — A child, four and a half years old, and the only daughter of a professional friend, had a posterior curvature of the lower dorsal vertebræ. She was a child of remarkable intellectual and personal attractiveness, with a great preponderance of the nervous over the osseous and muscular powers. When the apparent lesion amounted to a “mere knuckle,” she was taken the rounds of the celebrities of New York, in turn, but none of the steel appliances could be borne, on account of their weight and stiffness, and after full trial they were abandoned.

Meantime, the curvature increased in prominence, involving two more vertebræ, and spinal and general weakness steadily increased. At length, the Jacket was applied by the one above all others most skilful in its use, — Dr. Lewis Sayre. This she bore better than she did the others. So far as the power to stand and move about was concerned, there was some improvement at first. The first Jacket was worn one week, and the second one seven weeks; but during the last seven weeks the curvature involved still more vertebræ, the back was far weaker, and the child more irritable than when the Jacket was first applied. The whole system seemed to be struggling under a burden of oppression, and large, dark spots under the eyes gave signs of much prostration. The

mother had no rest from the constant attention demanded. "Take me, hold me, and love me!" was the constant cry. Her sleep was uneasy, and could only be taken when "stretched out upon her back, like one in her coffin"; she could not lie on her side, and the skin and ribs were sore from the pressure of the Jacket. In short, the doctor said "the whole system seemed to be sinking under the unequal struggle, although no signs of real *disease* were apparent."

At this juncture I took charge of the case, which, at the start, was the most irritable, jaded, and crotchety case I ever approached. I removed the Jacket and applied a Prop, like Fig. 3 (see page 8). Although there was a terrible scene with the child during its application, the immediate relief to the spine and the nervous system was such, that within the first hour she capered about the rooms in high glee, and, on my leaving, put up her happy face for a kiss, unsolicited, notwithstanding I had previously failed to secure that favor.

It is now but a short time since the change in appliances was made, and yet her form is erect, and she is as playful and cheerful as a lark. The doctor says, "She now cuddles down on her side and sleeps like a kitten all night, and awakens bright and good natured in the morning." Of the child's own estimate of the difference between the Jacket and the Prop, the reader may judge by the fact that, for purposes of family government, the simple threat to take away the Prop and return to the Jacket immediately brings her to terms. (But the subjoined letter from the grateful father clinches the point. At

the request of the mother, his name, for the present, is not given; but a *private* reference can be had on application to me.)

“ORANGE, N. J., Dec. 15, 1877.

“MY DEAR DR. HELMUTH:

“This will be handed you by Dr. E. P. Banning, who has lately been treating our little daughter, in whom you showed a kind interest, and I have the extreme and grateful pleasure to say that his ‘Compound Vertical and Bracing Spinal Prop,’ after the failure of the Plaster Jacket, and other appliances has suddenly wrought wonders. She has now been under Dr. Banning’s care but a short time, and yet, from being unable to rest at night, or to walk or stand more than a moment (and that with distress), she is now gay as a lark, rests soundly, plays freely, and, what is more, her curvature with unequal hips is nearly gone.

“Very truly, etc.”

These comparisons might be extended indefinitely, but as my object has been more to settle the *comparative* than the declarative merits of these two principles and plans, I forbear further citations.

OF THE JACKET IN BILATERAL CURVATURE.

This malady consists simply in the upper and lower spine being so curved in opposite directions as to throw the body to one side of the true spinal axis, and to cause the body to rest upon one foot principally, thereby causing the body’s gravity to literally

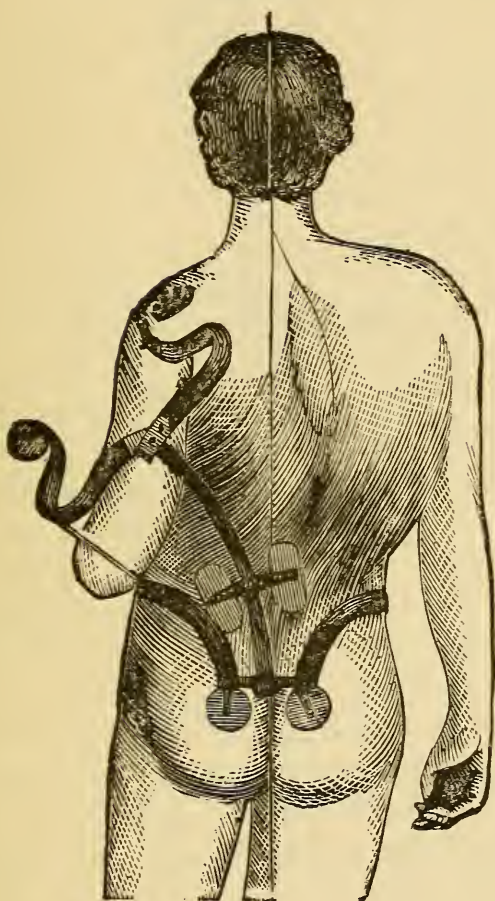


FIG. 7.

CENTRIPETAL SPINAL LEVER, accomplishing nothing, its lever powers not being brought around the shoulders.

swing across the spinal centre, causing one leg to be apparently longer than the other, and the hips to stand somewhat like a tin pan tipped up on one edge of the base. Here, manifestly, unequalized weight from a one-sided base is the cause and perpetuation of this trouble. It is also manifest that to reverse the force of the body's weight to the opposite side, at each point of curvature, is the true principle of cure indicated; consequently, if we shift the body's weight from the right to the left foot we accomplish the desideratum, for this effects a complete *reversal* of all the crushing and curving forces to the opposite side at each point of curvature, thereby causing weight to brace against each spinal convexity, and also to relax the strong muscles on one side, and to compel the dormant and lax muscles of the opposite side to commence to work so that by the joint action of a double reversed gravity, and a double reversed muscular action, the bilaterality is crushed, and dragged into axio (see Fig. 6, page 14).

But this (like the producing curve) is to be done by operating *specifically* at one point and at the convexity of each curve, if we would have any aid from nature, philosophy, or physiology. This action we found in the Centripetal Spinal Lever, which yielding, but forcibly, braces each curvature toward the true spinal axis, thereby balancing the body upon the opposite foot, and upon the spinal centre, when on the body (see Figs. 7 and 8), and causing the very weight which made the curvature to restore symmetry and strength by crushing out the same.

But where is there the slightest approximation to

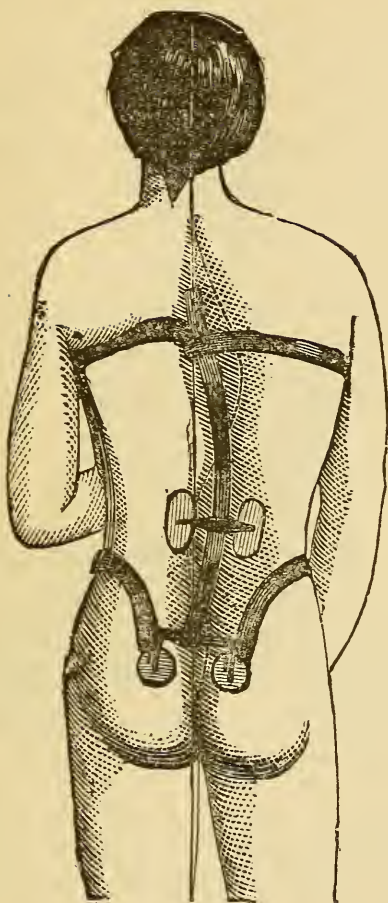


FIG. 8.

CENTRIPETAL SPINAL LEVER in full activity, elevating and drawing out the left shoulder, drawing in the right shoulder, supporting the lumbar curve to the right, and aggressively restoring the body to its axis, and so crushing out the curvature by means of the very gravity which caused it.

a specific lateral action, even at *one* point — and much less of *two* — by the simple coffin of the unyielding Jacket? It is not and cannot be in it. All that can be done by it is to *stretch* the crooked form, and in that state so unyieldingly confine and stiffen it that it *cannot* crook. In this case the pressing or supporting points will be at the top of the Jacket on one side and at the bottom on the other, often pressing at those points with severity; but not one ounce of action but the squeezing one is exerted anywhere, nor the slightest approach to equalization of weight or muscular antagonism. On the contrary they are discouraged. Of the record on this point space allows but one or two cases:—

CASE I.—Miss E——, of Boston, a tall and slender young lady, had steadily settled into an advanced bilateral curvature, with great inequalities in the hips and shoulders, so as to require very heavy padding to conceal the deformity. After wearing the Gypsum Jacket for six weeks, I was consulted. She complained of great labor in respiration; said she breathed principally with her stomach; felt oppression about the heart and chest; stomach felt constantly faint; a constant weight and bearing down at the inferior abdomen, with cold feet and constipation. Manifestly, in her slender frame every natural evil tendency was developed. Indeed, it was too palpable that all the constitutional powers were suffering. I ordered her prison-house removed, to her great comfort. This case did not come under my care.



FIG. 9.

Fig. 9 represents the double-acting spring reverser applied, which, by its spring pressure on the enlarged shoulder and opposite hip, assists the Centripetal Lever in swaying the body into its axis, at the same time leaving the motions of the body free. By its action the inequalities of the hips and shoulders of young people are corrected, with no deforming appearance through the apparel.

ON THE SPIRAL WIRE JACKET.

Its weight is ponderous ; consequently, whilst its wearers are obliged to feel the stiffening effects of a squeezing pressure, it exerts not one concordant physiological action. Go where we may, we find delicate and weak sufferers packing these weighty hugging and heating things.

But what would be the action of the Plaster, or of the Spiral Jacket, where such decided vertical spinal and abdominal support is required, with no positive power, and nothing but a horizontal action, compared with that of the Compound Vertical, Bracing and Expanding Supporters ? Let one out of hundreds of cases answer : —

CASE 2. — ———, of Boston, was a very tall and naturally beautiful girl, but, at the age of sixteen, commenced to break down and become helpless under a bilateral curvature of the usual character, but her weak constitution and slender make caused it to take away both health and strength, and compel her to keep her lounge about constantly. Her respiration was difficult, with much pain from the compression of the retracted ribs on the heart. No money or means were spared in her case ; every device was tried, but there seemed no hope. In this case the Spiral Coil Jacket had been worn, and under its uniform and firm hugging action from the base of the sacrum to the neck, had held her somewhat up, but in a constant sense of confinement and restraint. It gave no liberty to any part, because the weakness

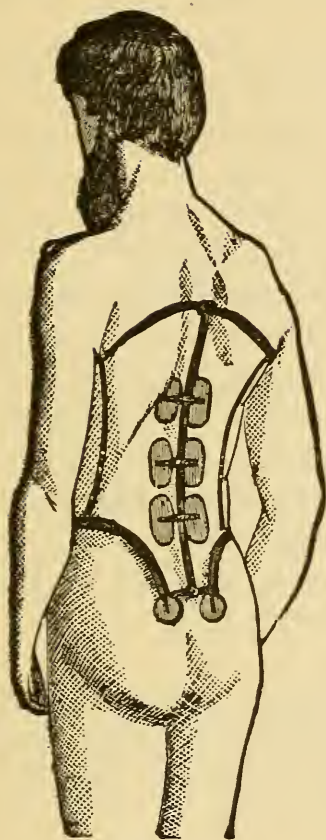


FIG. 10.

SPINAL PROP FOR SPINAL IRRITATION WITHOUT CURVATURE. — Fig. 10 shows Fig. 3, not only supporting the abdomen, expanding the waist and chest, and supporting the weak spine, but also relieving spinal irritation, by taking the weight of the body from tender spinal points, and protecting the latter in the case of jolting and twisting the body.

required the uniform pressure everywhere. Doubtless much of the muscular weakness had been induced by the utter disuse of all the muscles. In this forlorn state, the Centripetal Lever was applied with all those centripetating actions before delineated. It had been feared that the removal of so much and such extensive circular support would be very depressing, but, to the surprise of all, she declared the pains in chest and heart were immediately gone and her strength greatly increased. In two or three days this withering beauty attended and assisted in an operatic performance. Within one month, the double curvatures was greatly diminished. The sharply displaced shoulder-blade was quite flattened, whilst the depressed was much more prominent; and she now (three or four months since) is a complete and quite a symmetrical young lady.

But why multiply cases? The principles are too obvious to require further elucidation or confirmation from the mass of cases now lying before us.

SPINAL IRRITATION.

This is a phase of spinal trouble which, though not necessarily attended by any curvature, is second to no caries in point of the local and general sufferings which it involves. It may not involve the slightest curvature, nor any apparent undue compression or inflammation of the cartilages, nor even congestion or redness of the *medula-spinalis*, or its meninges. Often, in the worst of the cases, dissection has found

none of the footprints of this malady in any of the spinal tissues.

The phenomena are, sense of pain and tenderness of the whole or a portion of the vertebræ; fugitive or permanent pains in some or all of the viscera; pain, pressure, dizziness, confusion and noises in the head, with vigilance, anxiety, sleeplessness, and inability to either think or stop thinking. Usually, all these symptoms are aggravated by standing, twisting the body, or walking.

Various and many are the theories of its pathology. Some, that of local spinal irritation; some, reflex action from the uterus and other organs, and probably there is, at times, some truth in each of these in turn; but as a rule, the corresponding local and internal treatments fail to cure, and very often to ameliorate even. But by far the most common theory is that of an irritated or diseased condition of some tissue of the spinal column, which must be met by diverting such morbid action to the surface, by a counter-surface action. This is undertaken, first, by moderate counter-irritants, which (as the failures may indicate) are to become more and more severe from repeated blisters to setons, the caustic potash, and the moxa, and at length to the actual white hot iron down the full length of the spine on each side. This severe practice is so heroic as to be not much used by modest men, and is mainly confined to what are called the higher circles of practice, among those who are *up so high* as to be made more popular according to the barbarity which they practise. But I have been young, and now am old; yet scarcely, if

ever, have I seen any permanent good fruit growing from this practice, further than from the hope and excitement inspired from the extremeness of the measure, or from the temporary relief from one pain, by attention having been drawn to another. In real fact, the latter seems to be the rationale to the supposed occasional relief from the above practice, oft repeated.

But, however obscure and unsatisfactory the various pathologies of irritation of the spinal tissues are, and however unsuccessful the counter-irritating treatments are, one thing is nearly infallibly certain; if you place your hands under each axilla and gently lift for five minutes,—or, if you at the same time support the abdomen and the small of the back,—the greatest sufferers universally speak of a sense of rest from uneasiness and pain. Now, whilst this cannot prove the existence of any particular condition of the spine, it must clearly show that weight and friction on the vertebræ aggravate the local and radiated sufferings, and most forcibly suggests that a *part* of the remedy, at least, is to elevate the abdominal viscera from the irritable uterus and ovaries, and at the same time a part of the weight from the irritable cartilages, ligaments, and nerves, and also to preserve the privileges of air, exercise, and the diversions of society.

For the accomplishment of all this, we have, first, the circular and mere horizontal supports, of which there are two kindred varieties: First, the Gypsum Jacket (see Fig. 1); second, the Laced Jacket, armed with spiral springs. The action of the first, as we

have previously seen, acts only like a broad hoop to a slim green putty figure, and does not remove *any* weight, either by supporting the abdominal organs or the weight of the upper trunk. The jacket so often used by a spinal celebrity of this city, and in New York, also exerts this same circular-hoop action, with this difference : first, it is yielding and elastic ; second, it *aims* to give a lifting and supporting action, vertically, by its rows of spiral coils : but these stop short of that end, because they have no pivotal point from which to lift, and what upward support they exert is mainly from resting downward upon the already weak and relaxed abdominal muscles ; thus it is but little more protection from pressure than the Gypsum Jacket.

The second class of supports is that represented by a modification of Fig. 3 (see Fig. 10, page 25). This appliance differs from Fig. 4 only in having no hollow square, because there is no curvature ; its long lever here acting simply as a *bracing support*, or an artificial spine. The interpretation of the whole is, — first, to elevate and compact the whole line of viscera from the uterus, and compel them to support the spine from within, as the body does its garments ; next, to prevent the irritable points from a constant aggravating weight, and from jolts ; third, to push forward the dorso-lumbar curve, so as to relieve the vertebral bodies and cartilages from pressure, by balancing the weight of the body directly over and upon the central processes of the spine. (See explanation of Fig. 3, whilst upon the body, page 8.)

Thus much for the *theory* of the malady, and of the

treatment ; but, fortunately for humanity, the historic record has been so benign as to far outstrip and beggar any theory. Indeed, so wonderful has been the results of this appliance in the premises, in hundreds of cases, that I am barely restrained from citing quite a number, but one or two must suffice.

CASE I. — Miss O ——— of Allegheny City, Pa., had been for fourteen years the subject of spinal irritation without curvatures. For seven or eight years she was mainly confined to bed. The pains in her whole spine and head were so unbearable as to preclude sleep ; even under heavy doses of chloral and morphine she said she “ never slept.” The flesh entirely wasted from her limbs, and the skin hung around them like a shirt. For four years she never stood or sat up. The spine was untouchably tender. This case had sturdily encountered the *heroic* practice from simple blisters all the way up to repeated burnings down each side of the spine with the hot iron, till “ the smoke ascended to the ceiling.” This course was forlornly pursued until the surgeon voluntarily retired from the case, and “ left her to nature ” (quite wisely). In this condition, while she was prone upon her back, I applied the Prop (Fig. 6) to raise weight from the uterus and from the sore and aching spine.

Result : On the first night *she slept*, and from that day had to draw no more blisters. Soon she relished food, and continued to sleep regularly, and in four weeks sat up (and walked the room) four hours a day. The flesh also returned to her limbs gradually, and she was the wonder of that section of the country.

And now, my duty done, I earnestly say to practitioners and to sufferers: Blame me not if you still pursue the old, cruel, and unsuccessful way, with such palpable light before you.

Fraternally yours,

E. P. BANNING, M. D.

BIOGRAPHICAL SKETCH.

E. P. Banning, M. D., was born in Canfield, Ohio, in 1810, and in 1832 entered upon the practice of his profession in the then obscure hamlet, but now flourishing city of Titusville, Pa.

Struck with the fact that an increasing class of chronic diseases baffled his best efforts, he opened up the then unknown field of mechanical pathology, and has since devoted his life, energies, and talents to the prosecution of his researches.

He had three sons, Welles Tanner Banning (deceased), E. P. Banning, Jr., and Archibald Tanner Banning. The two living sons are now engaged in the practice of their professions, and in the manufacture of various appliances invented by their father, with the improvements and new ones developed by themselves.

A careful research has proven the fact that said E. P. Banning, Sr., E. P. Banning, Jr., and Archibald T. Banning are the only persons of the name engaged in the manufacture of mechanical supports. It is, therefore, important that physicians should order their appliances as below directed.

In many instances where a complaint has been

made of disappointment in the results obtained from the use of the Banning system of support, it has been discovered that the appliance, or appliances, have been manufactured, as a rule, under the auspices of parties utterly unacquainted with physiological law, or the needs of the patient, therefore incompetent to direct the manufacture of the appliances needed; some of these impostors calling themselves by the name of Banning. The profession, therefore, will recognize the importance and advantage of corresponding with E. P. BANNING, M. D., OFFICE AND RESIDENCE, 101 BOYLSTON STREET, BOSTON, MASS., U. S. A.; and ordering appliances from the Banning Brace and Supporter Company, 57 Tremont Street, of which company the Drs. Banning are the physicians.

Dr. Banning will be happy to see any member of the profession at his office, or to correspond relative to cases.

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